

Docket No. 60,469-021
OT-4718

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Wesson, et al.

Serial No.: 09/648,016

Filed: 08/25/2000

Group Art Unit: 3652

Examiner: Tran, Thuy Van

Title: ELEVATOR ROLLER GUIDE AND RAIL ASSEMBLY

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GROUP 3600

APPEAL BRIEF

Box AF
Assistant Commissioner of Patents
Washington, D.C. 20231

Dear Sir:

Applicant filed the Notice of Appeal in this application on September 6, 2002. Appellant now submits its brief in the above-referenced application. The required fee of \$320.00 may be charged to Deposit Account No. 15-0750 in the name of Otis Elevator Company.

Real Party in Interest

Otis Elevator Company is the real party in interest.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 13-21 stand finally rejected. Claims 13 and 16-21 were rejected under 35 U.S.C. §112, second paragraph; claims 13-16 and 21 were rejected under 35 U.S.C. §102(b); claims 17, 18 and 20 were rejected under 35 U.S.C. §103 over one reference; and claim 19 was rejected under 35 U.S.C. §103 over a combination of two references.

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Status of Amendments

There are no unentered amendments.

Summary of the Invention

Elevator door systems typically include a door frame supported by rollers that roll along a metal rail so that the doors can be moved between opened and closed positions. One difficulty associated with conventional arrangements is that the rail surface is subject to wear and corrosion. The challenge of designing a durable roller and rail system has become further complicated by the introduction of powered rollers for moving elevator doors. With such arrangements, the roller and rail interaction must not only support the door but also provide sufficient traction for moving the door. Competing design considerations such as having sufficient roller to rail contact and fitting within available space constraints places additional challenges and burdens on designers of such arrangements. (Page 1, lines 8 - page 2, line 5).

This invention presents a significant improvement in that it includes a unique rail surface design. In one example, the track 30 is a resilient or flexible insert that is received on one side of a rail 26. The track 30 includes first and second portions 32 and 34 at opposite ends of the track with a third portion 36 extending along a central portion of the rail 26. (Page 4, lines 1-6, Fig. 3).

The track includes different surface characteristics to meet the differing needs during movement of the elevator door. Ends of the track preferably include a traction surface 38 that can be realized in various forms. For example, the traction surface 38 may be knurled or a roughened surface for increased traction between the roller and the track 30. Having a traction surface near the ends of the track facilitates better acceleration and deceleration at the ends of movement of the door. The central portion 36 of the track 30 may include a smooth surface 40 (i.e., a second surface characteristic) that allows for quiet roller operation as the roller rolls along the track 30. (Page 4, lines 7-17).

In one example, the track 30 is made up of separate pieces of flexible material so that the first portion 32, second portion 34 and third portion 36 are independently and selectively removable or replaced as may be needed over the life of the door 70. (Page 4, lines 18-20, Fig. 4).

Independent claim 13 recites, "a resilient material track at least partially received by the supporting surface on the rail, the resilient material having a first surface characteristic

near at least one end of the track and a second surface characteristic that is different than the first surface characteristic on another portion of the track.” The dependent claims recite various structural features of a track designed according to this invention.

Issues

Whether the final rejections under 35 U.S.C. §112, are proper when the terminology that the Examiner alleges is unclear has a well understood standard meaning and is plain from the context of the claims.

Whether the final rejections under 35 U.S.C. §102(b) are proper when the cited reference does not show a track having different surface characteristics on different portions of the track.

Whether the final rejections under 35 U.S.C. §103 are proper when the cited art does not show the different surface characteristics as claimed, nor is there any motivation or suggestion from within the art to make the modifications proposed by the Examiner.

Grouping of Claims

Every rejection of claims 13-21 is contested.

1. The rejection under 35 U.S.C. §112:

Claims 13 and 16-21 stand or fall together with regard to the rejection under 35 U.S.C. §112.

2. The rejection under 35 U.S.C. §102(b):

Claims 13-16 and 21 were rejected under 35 U.S.C. §102(b). Claim 13 stands alone. Claim 14 stands alone. Claim 15 stands alone. Claim 16 stands alone. Claim 21 stands alone.

3. The rejection under 35 U.S.C. §103:

Claims 17, 18 and 20 were rejected under 35 U.S.C. §103 as being unpatentable. Claim 17 stands alone. Claim 18 stands alone. Claim 20 stands alone.

Claim 19 was rejected under 35 U.S.C. §103. Claim 19 stands alone.

Argument

INTRODUCTION

The claim language is clear and there is no proper basis for a rejection under 35 U.S.C. §112. The claims are not anticipated because the prior art does not show a track having different surface characteristics as claimed. None of the claims are obvious because none of the art shows what is claimed and the Examiner's proposed modifications do not provide any benefit or defeat the intended function of at least a portion of the primary reference relied upon by the Examiner.

THE CITED REFERENCES

A. United States Patent No. 5,655,626 ("the *Spiess* reference")

The *Spiess* reference shows a steel sheet, hose-like or tube-like covering 4 that is used for a roller guide in a sliding elevator door arrangement. There is nothing in the *Spiess* reference that teaches having different surface characteristics on the covering 4.

The Examiner apparently, and improperly, is interpreting the cross hatching on the sections 26 in Figure 2C as showing different surfaces or surface characteristics. The indications of the sections 26 in Figure 2C of the *Spiess* reference, however, indicate "zones" and do not indicate different surfaces or surface characteristics. That drawing must be interpreted in light of the text of that document. Column 4, lines 1-9, clearly teach that different pressures *inside* of the hose-like covering 4 are used to establish "hard unsprung at-rest zones 26."

The *Spiess* reference teaches:

A hose-like or tube-like covering 4 of steel sheet, the rail running surface of which is convexly curved, is so dimensioned that the spring effect thereof is stressed or loaded only within the elastic limit or range of the sheet metal. In order to achieve an optimum spring effect, the radius of running or contact surface 2 of runner 1 is slightly greater than the radius of rail running surface 3. An elastic filling 5, for example of a rubber material, which dampens the running noise caused by the movement of runner 1 and prevents a propagation of sound in guide 11, is mounted or contained within hose-like covering 4....

FIG. 2b shows another variation In place of elastic filling 5, an elastic cushion 17, for example of a rubber material, is inserted, within hose-like covering 4, over the entire length of a guide rail 16....Due to moveable plunger 21 and its threaded

portion 22, the pressure on elastic cushion 17 can be varied, which corresponds to a reduction or an increase in the spring travel....

FIG. 2c shows another embodiment of guide rails 11 and 16 that are utilized in the FIG. 2a and 2b constructions. Due to the mounting or positioning of hard, unsprung zones 26 at the standstill or at rest positions of runners 1, smaller starting moments are achieved, resulting in smaller canting or misalignment of door panes 56. These hard unsprung at-rest zones 26 can be produced by mounting different fillings 5 as per FIG 2a or by varying the filing pressure via plunger 21 as per FIG 2b. (Column 3, line 30 - column 4, line 9).

Accordingly, the *Spiess* reference teaches an arrangement where a steel hose-like covering 4 includes an elastic filling 5 or an elastic cushion 17. Plungers 21 may be used within the hose-like covering 4 to alter the spring constant within the cover. The harder zones 26 have a different interior feature or characteristic compared to other portions of the arrangement in the *Spiess* reference (to avoid door sag or tilting). Nothing within the *Spiess* reference addresses the possibility for changing the exterior surface of the hose-like covering 4 at any portion along its length.

B. United States Patent No. 5,852,897 (“the *Sukale* reference”)

The Examiner relies on the *Sukale* reference for showing a door drive system having a roller 4 including magnetic portions 5 that interact with an electric motor assembly 6 to selectively cause the roller to roll along the track 6.

THE REJECTION UNDER 35 U.S.C. §112 IS IMPROPER

The Examiner has rejected claims 13 and 16-21 under 35 U.S.C. §112, second paragraph, as being indefinite because they include the recitation “the resilient material having a first surface characteristic near at least one end of the track and a second surface characteristic that is different than the first surface characteristic on another portion of the track.” The Examiner contends that this recitation renders the claims indefinite because the Examiner does not understand what is meant by “surface characteristic.”

The term “surface characteristic” is clearly understood in light of the specification and the claims, themselves. A dictionary definition of surface is “the exterior or outside of an object or body,” for example. A definition of characteristic is “a trait, quality or property distinguishing an individual, group or type,” for example. Both of these definitions are taken

from *Webster's New International Dictionary*, 2nd Edition. Accordingly, a surface characteristic is a trait or quality of the surface that distinguishes it from another. Therefore, in the context of the claims, a first surface characteristic means that a first surface has a distinguishing quality or trait compared to the second surface with the second surface characteristic. Further, claims 14 and 15 provide further examples of specific surface characteristics where, in claim 15 for example, the first surface characteristic comprises a rough surface while the second characteristic comprises a surface that is smoother than the rough surface.

Applicant respectfully submits that the claim language is clear. There is no ambiguity as to what is meant by the term "surface characteristic." Further, the claim clearly recites that the different characteristics distinguish the surfaces of the different portions of the claimed track.

THE REJECTION UNDER 35 U.S.C. §102 IS IMPROPER

The Examiner rejected claims 13-16 and 21 under 35 U.S.C. §102(d) as being anticipated by the *Spiess* reference. The Examiner improperly interprets Fig. 2c and column 4, lines 1-9 as teaching a resilient track having different surface characteristics. As pointed out above, nothing in the *Spiess* reference addresses or even hints at having different surfaces or different surface characteristics along the hose-like covering 4. Instead, the language of the *Spiess* reference clearly teaches that the different zones 26 shown in Fig. 2c are "hard, unsprung at-rest zones 26" that have a different inside or interior spring constant compared to other portions of the hose-like covering 4. The internal pressure spring constant of the arrangement in the *Spiess* reference is directed entirely to an internal feature or characteristic and has nothing to do with the surface of the hose-like covering 4. The stated purpose for such zones is to avoid the door tilting, which is not addressed by a surface of the covering 4. Utilizing different pressures within different portions of the hose-like covering 4 does not alter or vary the surface of that covering on the outside. There is no anticipation.

THE REJECTIONS UNDER 35 U.S.C. §103 ARE IMPROPER

The Examiner has rejected claims 17, 18 and 20 under 35 U.S.C. §103 as being unpatentable over the *Spiess* reference. The Examiner begins the rejection by improperly assuming that "it would have been an obvious matter of design choice of one of the materials of claim 17, a sprayed on layer as recited in claim 18 or independent portions as recited in claim 20." There is nothing within the *Spiess* reference that would suggest or even hint at replacing

the continuous steel, hose-like covering 4 with any of the arrangements recited in claims 17, 18 or 20. The *Spiess* reference teaches an arrangement that is specifically designed to have a material within a hose-like, steel covering 4 so that different spring pressures may be established within the hose-like covering to achieve the desired hardness beneath the covering 4. There is nothing within *Spiess* that suggests any modification or changes to make it consistent with what applicant claims in claims 17, 18 or 20.

Moreover, the Examiner's proposed "design choice" changes would defeat the intended operation of the *Spiess* reference. For example, if one were to substitute a layer of material that is sprayed on in place of the steel, hose-like covering 4, there would be nothing to contain the filler material 5 or 17 within the *Spiess* reference and the ability to achieve the different pressures or spring constants would be eliminated.

Additionally, the *Spiess* reference specifically teaches that the filler (i.e., the elastic cushion 17) is inserted "within hose-like covering 4, over the entire length of a guide rail 16." (Column 3, lines 54-56). The Examiner's proposed modification (taken only after reading Applicant's disclosure) to substitute independently removable pieces cannot be considered obvious because that would eliminate the ability to use a single piece filling 5 or cushion 17 as taught by *Spiess*.

Further, there would be no benefit to having removable pieces in the *Spiess* reference where it relies upon a continuous, one-piece cushion or filling. Further, the steel, hose-like covering 4 is all one piece in the *Spiess* reference.

When a suggested modification would defeat a function or intended purpose of a reference or there would be no benefit for that modification, there is no *prima facie* case of obviousness.

Further, as pointed out above, the *Spiess* reference does not disclose a resilient track having different surface characteristics as claimed. Therefore, even if one made the modifications proposed by the Examiner, the result would not be the same as Applicant's invention because nothing within *Spiess* suggests or teaches the different surface characteristics.

Claim 19 was rejected under 35 U.S.C. §103 as being unpatentable over the combination of the *Spiess* reference and the *Sukale* reference. There is nothing within *Spiess* or *Sukale* that suggests that there is any compatibility between the two. There is nothing within *Spiess* that suggests that it needs any modification or would include any benefit by having the roller arrangement of the *Sukale* reference. Accordingly, there is no *prima facie* case of

obviousness because there is no motivation to make the combination. The Examiner cannot use Applicant's disclosure and claims as a road map for piecing together the prior art where there is no motivation for making the Examiner's proposed combination.

CLAIM 13 IS ALLOWABLE

Claim 13 includes "a resilient material track having a first surface characteristic near at least one end of the track and a second surface characteristic that is different than the first surface characteristic on another portion of the track." Nothing within the cited references teaches or suggests this arrangement. There is no anticipation.

CLAIM 14 IS ALLOWABLE

Claim 14 recites that the surface characteristics are friction characteristics and provides that the first characteristic provides greater friction between the track and the roller than the second characteristic. There is nothing within the cited references for having different friction characteristics as recited in claim 14.

CLAIM 15 IS ALLOWABLE

Claim 15 includes a rough surface as the first surface characteristic and a smoother surface as the second surface characteristic. There is nothing within the cited references that shows or even hints at such an arrangement.

CLAIM 16 IS ALLOWABLE

Claim 16 further recites that the track comprises multiple pieces where different materials are used for the different pieces. This is nowhere shown or suggested within the cited references. The *Spiess* reference discloses a single piece steel, hose-like covering 4 that has the same surface characteristic along the entire length. There is nothing within the *Spiess* reference that suggests using different materials for different portions of the hose-like covering 4.

CLAIM 17 IS ALLOWABLE

Claim 17 recites various materials from which the resilient track may be made. It cannot be considered obvious to substitute one of these materials for the steel used in the *Spiess* reference. A polyurethane, a polyester elastomer, a fluoroelastomer, or vulcanized rubber have

very different properties compared to steel so that it is not “a mere design choice” to substitute one of these materials for the steel hose-like covering 4 used in the *Spiess* reference. There is no motivation or suggestion to make such a change to the *Spiess* reference. Moreover, it appears that making such a change would so alter the function of the different portions of the *Spiess* reference that the arrangement would be rendered inoperative.

CLAIM 18 IS ALLOWABLE

Claim 18 recites that the track comprises a layer of material sprayed onto a rail. There is no way for this type of arrangement to be used in the *Spiess* reference. The hose-like covering 4 is a steel band that is secured to the carrier section 6 of the *Spiess* reference. The elastic filling 5 or the elastic cushion 17 must be maintained within the hose-like covering 4. A spray-on “substitute” makes *Spiess* unworkable as intended. It is inconceivable, therefore, how the Examiner considers a change to a sprayed on material on a rail to be a “mere design choice” compared to *Spiess*. There are such significant differences between the arrangements that it is not possible to find a motivation or suggestion in *Spiess* for making such a change. Further, nothing within *Spiess* suggests or hints at a need for making any changes compared to the disclosed materials and arrangement to accomplish the object of the *Spiess* invention.

CLAIM 19 IS ALLOWABLE

The rejection of claim 19 depends upon the combination of the *Spiess* and *Sukale* references. There is no motivation or suggestion within either of them for making the combination proposed by the Examiner only after reading Applicant’s disclosure and claims. Moreover, even if the combination were proper, the result is not the same as the claimed invention because neither *Spiess* nor *Sukale* disclose a track having different surface characteristics as claimed.

CLAIM 20 IS ALLOWABLE

Claim 20 recites that the track “comprises a plurality of independent portions that are selectively independently removable from the rail.” There is nothing within *Spiess* to suggest an arrangement where independent portions are used for a track. Instead, as pointed out above, the *Spiess* reference relies upon a hose-like covering that extends along the entire length of the rail with a filling that extends along the entire length. If one were to substitute individual portions

as required by claim 20 into the *Spiess* arrangement, that would defeat the ability for the *Spiess* reference to perform its intended function. Moreover, even the proposed modification to *Spiess* does not include the different surface characteristics as claimed.

CLAIM 21 IS ALLOWABLE

Claim 21 recites that the first surface characteristic is near each end of the track. This arrangement provides for, for example, better friction characteristics near the ends of the track where the door rollers begin and end travel. Having different friction characteristics near the end, where traction is more important compared to a central portion of the rail, where smoothness of ride and quietness is more important provides a significant advantage that is nowhere shown nor suggested in the cited reference.

CONCLUSION

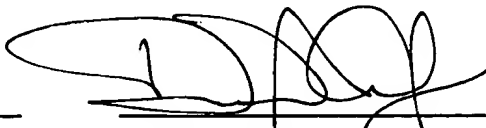
The claim language is clear and the rejection under 35 U.S.C. §112 must be reversed. There is nothing within the *Spiess* reference that shows or suggests different surface characteristics on a resilient track as claimed and the rejection under 35 U.S.C. §102 must be reversed. There is no suggestion or motivation to make the modifications to the *Spiess* reference suggested by the Examiner and there is no *prima facie* case of obviousness. Moreover, even if the modifications were proper, the result is not the same as the claimed arrangement because nothing in the cited references teaches or suggests having different surface characteristics on a resilient track as claimed. The rejections under 35 U.S.C. §103 must be reversed. All claims are allowable.

Respectfully solicited,

CARLSON, GASKEY & OLDS, P.C.

November 8, 2002

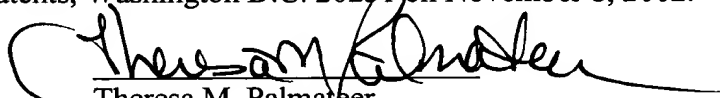
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CERTIFICATE OF MAIL

I hereby certify that the enclosed **Appeal Brief** (in triplicate) is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Box AF, Assistant Commissioner of Patents, Washington D.C. 20231 on November 8, 2002.


Theresa M. Palmateer

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APPENDIX OF CLAIMS

13. An elevator door assembly, comprising:
- a rail including at least one supporting surface along at least one side of the rail;
- a resilient material track at least partially received by the supporting surface on the rail, the resilient material having a first surface characteristic near at least one end of the track and a second surface characteristic that is different than the first surface characteristic on another portion of the track; and
- at least one roller that is adapted to roll along the track.
14. The assembly of claim 13, wherein the surface characteristics of the track comprise friction characteristics and wherein the first characteristic provides greater friction between the track and the roller than the second characteristic.
15. The assembly of claim 13, wherein the first surface characteristic comprises a rough surface and the second surface characteristic comprises a surface that is smoother than the rough surface.
16. The assembly of claim 13, wherein the track comprises multiple pieces, a first piece of one material having the first characteristic and a second piece of a second material.
17. The assembly of claim 13, wherein the resilient track material comprises at least one of polyurethane, a polyester elastomer, a fluoroelastomer or vulcanized rubber.
18. The assembly of claim 13, wherein the resilient material track comprises a layer of a material that is sprayed onto the rail.
19. The assembly of claim 13, including an electric motor assembly and wherein the roller includes a plurality of magnetic portions that interact with the motor assembly to selectively cause the roller to roll along the track.

20. The assembly of claim 13, wherein the track comprises a plurality of independent portions that are selectively independently removable from the rail.

21. The assembly of claim 13, wherein the first surface characteristic is near each end of the track.

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